

NOTES - Graphing Exponential Functions

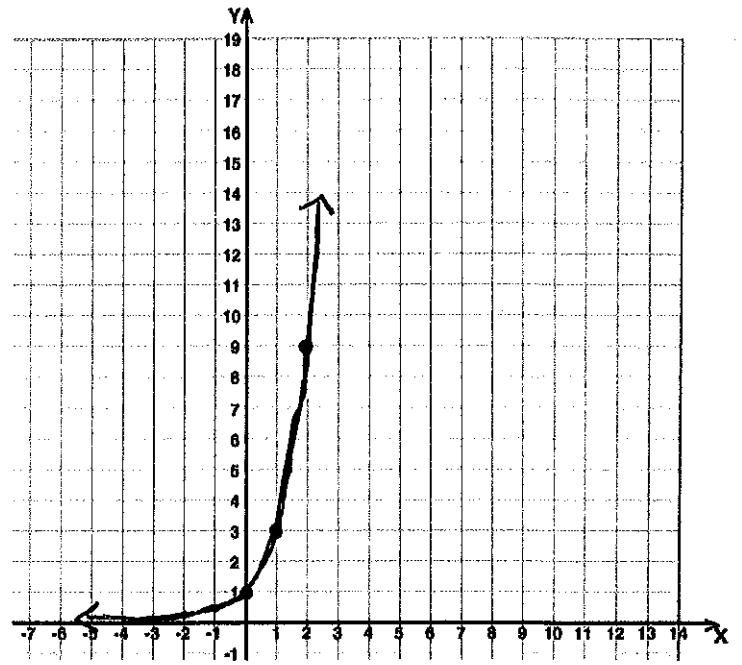
You can use the a and b values of $y = a \cdot b^x$ and/or your graphing calculator to make a table of values and graph an exponential function.

- a is the y-intercept, or in the table, the point $(0, a)$
- b is what you multiply the y values by to get from one point to the next

Growth
Example 1: $y = 3^x$
 $b = 3$
 $a = 1$ is hidden
 $1 \cdot 3^x$

x	y
-2	$\frac{1}{9}$
-1	$\frac{1}{3}$
0	1
1	3
2	9
3	27

$\div 3$
 $\div 3$
 $(0, a)$
 $\times 3$ (since $b = 3$)
 $\times 3$
 $\times 3$



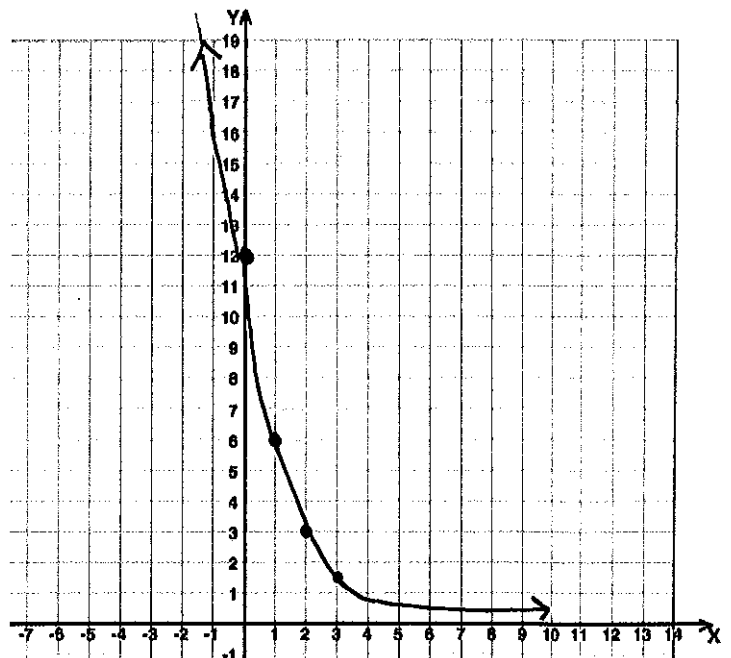
2nd Graph on calc also gives table!

Make sure your graph doesn't cross the x-axis!

Decay
Example 1: $y = 12\left(\frac{1}{2}\right)^x$
 $a = 12$
 $b = \frac{1}{2}$

x	y
-1	24
0	12
1	6
2	3
3	1.5

$\div \frac{1}{2}$
 $(0, a)$
 $\times \frac{1}{2}$
 $\times \frac{1}{2}$
 $\times \frac{1}{2}$

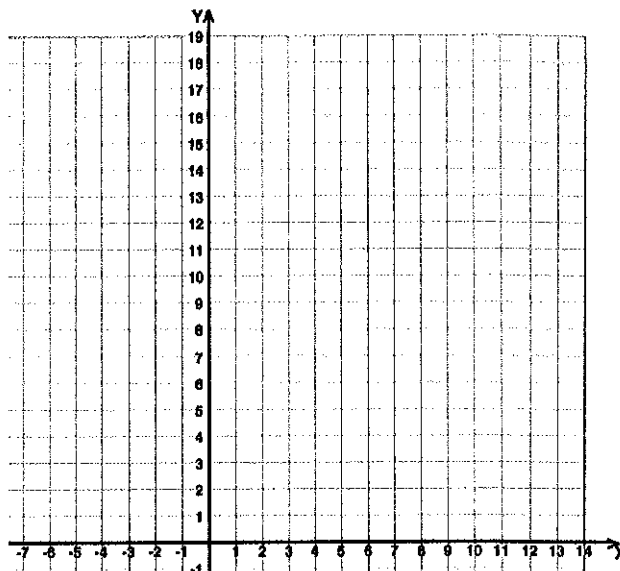


CLASSWORK – Graphing Exponential Functions

- Complete the table and graph for each function.

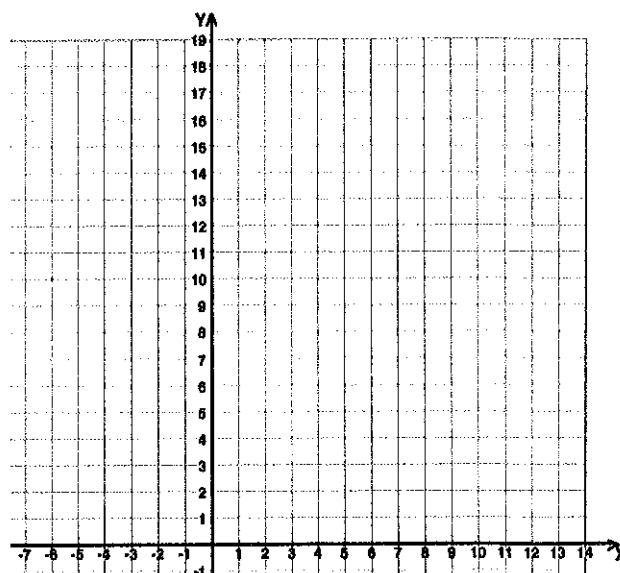
1) $y = 3 \cdot 2^x$

x	y
-2	
-1	
0	
1	
2	
3	



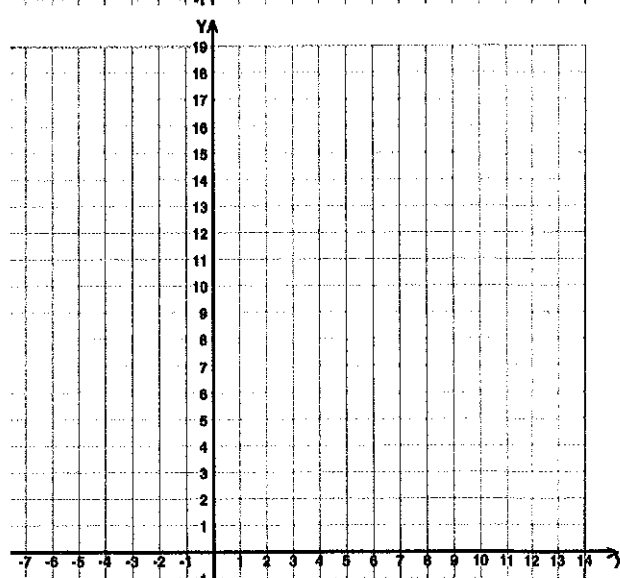
2) $y = 9 \cdot \left(\frac{1}{3}\right)^x$

x	y
-1	
0	
1	
2	
3	



3) $y = 0.25(4)^x$

x	y
-1	
0	
1	
2	
3	
4	



- NOW DO p. 528 #3-7, 21-24 on graph paper and turn in!
- You must have at least 3 specific points on each graph!